REMARKS/ARGUMENTS

This Amendment is submitted in response to the Office Action mailed May 27, 2008.

I. Introduction

Claims 1-29 remain pending in the application and stand rejected. Claims 2, 7, and 9 have been amended to overcome an indefiniteness rejections under 35 USC §112.

II. Rejections under §112 Second Paragraph

The Examiner rejected claims 2-13 under 35 USC 112, second paragraph averring that there is insufficient antecedent basis for the limitations "said M signal paths" recited in claims 2 and 9. The claims have been amended to replace "said M signal paths" with "said M separate subcarrier signal paths" rendering the claims definite. Accordingly, Applicant respectfully requests that the rejections be withdrawn.

III. Rejections under §103

Claims 1-29 stand rejected under 35 USC §103 based on a proposed combination of US publication 2003/0123383 (the Korobkov et al. publication) in view of US Patent 7,224,742 ("The Cleveland et al. patent").

1. The prior art references fail to disclose each and every element of the invention.

Claim 1 is patentable over the proposed combination because the claim recites various features not disclosed by either Korobkov or Cleveland including at least the features indicated in bold below:

> A frequency hopping communications device **for transmitting signals on a plurality of M subcarrier signals in parallel, each of said M subcarrier signals corresponding to a different one of M subcarrier signal**

frequencies, said M subcarrier signal frequencies being a subset of N subcarrier frequencies on which said communications device may transmit signals over time, where M and N are positive integers and where M<N, said frequency hopping communications device including:

a frequency control circuit for controlling which of the N subcarrier frequencies are generated and used by said device for the transmission of signals;

a plurality of M separate subcarrier signals paths operating in parallel, each of the M subcarrier signal paths including a programmable signal generator coupled to said frequency control circuit, a power amplification circuit and a filter circuit, said programmable signal generator for generating a subcarrier signal determined by said frequency control circuit and having a subcarrier frequency corresponding to said subcarrier signal path to which said signal generator corresponds; and

a combining circuit for combining *analog subcarrier signals* corresponding to different subcarrier signal paths prior to transmission.

The Office Action avers that Korobkov's modulators shown in Figure 3 generate OFDM sub-carriers. (Office Action, Page 4, Lines 12-14). Applicant respectfully disagrees.

Korobkov's OFDM TX engines 52(1)-52(j) shown in Figure 3 process **sub-channel** baseband data and they do not generate individual **sub-carriers.** The sub-channel baseband data processed by OFDM TX engines 52(1)-52(j) is all digitally processed. Korobkov teaches that "the data input 51(1)-51(j) into each sub-channel is processed by the respective OFDM TX engine 52(1)-53(J) to generate a sequence of OFDM symbols of length $N^{(n)}+L^{(n)}$ for each sub-channel". (see Korobkov, Figure 3, Paragraph 40, 5th Sentence). Generating sequences of baseband OFDM symbols is a far cry from generating OFDM sub-carriers.

Applicant also notes that this extensive sub-channel processing described by Korobkov requires a significant amount of digital signal processing that is not needed when a combining circuit is used to combine analog subcarrier signals prior to transmission.

Claim 1 recites such a combining circuit for combining analog subcarrier signals corresponding to different subcarrier signal paths prior to transmission. The Examiner asserts that Korobkov discloses this feature in element 62 in figure 6. Applicant respectfully disagrees.

Korobkov's figure 6 is a block diagram of element 54 shown in Figure 3. Figure 3 and 6 are reproduced below. From figure 3 it is clear that the inputs to element 54 are sequences of OFDM symbols having length $N^{(n)}+L^{(n)}$. It is also clear that the output is also a digital sequence since the output of element 54 is fed to a digital to analog (D/A) converter 68. It can be appreciated that element 54 is thus operating completely in the digital domain and does not input or output analog subcarrier signals.

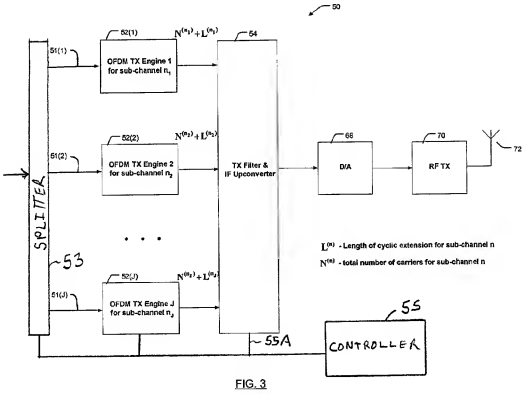

FIG. 3

Studying Figure 6 reproduced below, we see that element 54 operates completely in the digital domain and thus cannot anticipate the recited analog subcarrier signal. Those skilled in the art will recognize that each of the blocks in the figure such as fast convolution, FFT, IFFT refers to a digital signal processing technique.

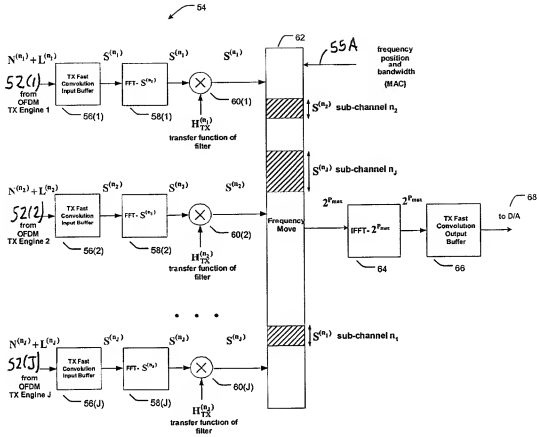

FIG. 6

The processing done by element 62 (which the Examiner identifies as a combiner circuit **for combining analog signals)** does not operate on analog signal but rather digital signals. The digital output of element 62 is then post-processed using IFFT 64 and a Fast Convolution Buffer 66 before being fed to **D/A 68** which is then used to generate an analog signal from the digital signal generated by the digital signal processing shown in Fig. 6.

2. The proposed combination of Korbkov in view of Cleveland is unobvious.

In the office action the Examiner states:

> Korobkov discloses all of the subject matter as described above except for specifically teaching with said corresponding power

amplification circuit either before or after the corresponding power amplification circuit.

However, Cleveland et al., in the same field of endeavor, teaches with said corresponding power amplification circuit either before or after the corresponding power amplification circuit **(250 in figure 2**, col 3, lines 60-67, col 7, lines 1-5).

It should be noted that **analog amplifier 250** shown in Figure 2 of Cleveland et al. reference follows D/A conversion in that reference. Applicant believes that the Examiner is arguing that it would be obvious to insert a plurality of these **analog** amplifiers somewhere into the **digital** signal processing elements shown in Figure 6 of Korobkov et al. which precede D/A conversion. Applicants respectfully submit that such a modification is not obvious nor is it apparent that the use of an **analog** amplifier 250 in the **digital signal processing circuitry** shown in Figure 6 of Korobkov et al. would be in any way beneficial or desirable. In fact it would likely render Korobkov's device inoperable for its intended purpose since analog amplifiers are generally incompatible with digital signal processing circuits.

CONCLUSION

In view of the foregoing amendments and remarks, it is respectfully submitted that the pending claims are in condition for allowance. Accordingly, it is requested that the Examiner pass this application to issue.

. Please charge any fees or overpayments that may be due with this response to Deposit Account No. 17-0026.

Respectfully submitted,

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